D-Link *Air*Plus *Xtreme G*™

DWL-2100AP

802.11g Wireless
108Mbps Access Point

Manual

D-Link

Building Networks for People

Contents

Package Contents

Contents of Package:

- **D-Link *Air*Plus Xtreme G™DWL-2100AP**
  802.11g Wireless 108Mbps Access Point
- Power Adapter-DC 5V, 2.0A
- Manual and Warranty on CD
- Quick Installation Guide
- Ethernet Cable

If any of the above items are missing, please contact your reseller.

Note: Using a power supply with a different voltage rating than the one included with the DWL-2100AP will cause damage and void the warranty for this product.

System Requirements for Configuration:

- Computers with Windows, Macintosh, or Linux-based operating systems with an installed Ethernet adapter
- Internet Explorer Version 6.0 or Netscape Navigator Version 6.0 and Above

Introduction

At up to fifteen times the speed of previous wireless devices (up to 108Mbps in Super G mode), you can work faster and more efficiently, increasing productivity. With the DWL-2100AP, bandwidth-intensive applications like graphics or multimedia will benefit significantly because large files are able to move across the network quickly.

The DWL-2100AP is capable of operating in one of 5 different modes to meet your wireless networking needs. The DWL-2100AP can operate as an access point; in access point-to-access point bridging mode; access point-to-multipoint bridging mode; wireless client mode; or repeater.

The DWL-2100AP is an ideal solution for quickly creating and extending a wireless local area network (WLAN) in offices or other workplaces, trade shows and special events.

Unlike most access points, the DWL-2100AP provides data transfers at up to 108 Mbps in Super G mode when used with other D-Link *Air*Plus Xtreme *G*™ products. The 802.11g standard is backwards compatible with 802.11b devices.

The DWL-2100AP has the newest, strongest, most advanced security features available today. When used with other 802.11g WPA (WiFi Protected Access) compatible products in a network with a RADIUS server, the security features include:

WPA: **Wi-Fi Protected Access** which authorizes and identifies users based on a secret key that changes automatically at regular intervals. **WPA** uses **TKIP** (**Temporal Key Integrity Protocol**) to change the temporal key every 10,000 packets (a packet is a kind of message transmitted over a network.) This insures much greater security than the standard WEP security. (By contrast, the previous WEP encryption implementation required the keys to be changed manually.)

For home users that will not incorporate a RADIUS server in their network, the security for the DWL-2100AP, used in conjunction with other WPA-compatible 802.11 products, will still be much stronger than ever before. Utilizing the **Pre-Shared Key mode** of WPA, the DWL-2100AP will obtain a new security key every time it connects to the 802.11 network. You only need to input your encryption information once in the configuration menu. No longer will you have to manually input a new WEP key frequently to ensure security. With the DWL-2100AP, you will automatically receive a new key every time you connect, vastly increasing the safety of your communication.

Connections

Receptor for the **Power Adapter**

Pressing the **Reset Button** restores the DWL-2100AP to its original factory default settings.

The **LAN Port** is Auto-MDI/MDIX. You can insert either a straight-through or a crossover Ethernet cable in this port in order to connect the DWL-2100AP to the local network.

LEDs

LED stands for Light-Emitting Diode. The DWL-2100AP Wireless Access Point has 3 LEDs as shown below:

Power: Solid green light indicates connection

LAN: Blinking green light indicates activity on the Ethernet Port; solid green light indicates connection

WLAN: Blinking green light indicates wireless activity; solid green light indicates connection

Features

- **5 Different Operation modes -** Capable of operating in one of five different operation modes to meet your wireless networking requirements: Access Point; AP-to-AP Bridging; AP-to-Multipoint Bridging; Wireless Client; or Repeater.
- **Faster wireless networking** with the 802.11g standard to provide a wireless data rate of up to 54Mbps (108Mbps in Super G mode).
- **Compatible with the 802.11b standard** to provide a wireless data rate of up to 11Mbps - that means you can migrate your system to the 802.11g standard on your own schedule without sacrificing connectivity.
- **Better security with WPA.** The DWL-2100AP can securely connect to wireless clients on the network using WPA (Wi-Fi Protected Access) providing a much higher level of security for your data and communications than has previously been available. AES is also supported by the DWL-2100AP to maximize the network security with data encryption.
- **SNMP for Management.** The DWL-2100AP is not just fast but it also supports SNMP v.3 for a better network management. Superior wireless AP manager software is bundled with the DWL-2100AP for network configuration and firmware upgrade. Systems administrators can also setup the DWL-2100AP easily with the Web-based configuration. A D-Link D-View module will be downloadable for network administration and real-time network traffic monitoring with D-Link D-View software.
- Utilizes **OFDM** technology (**O**rthogonal **F**requency **D**ivision **M**ultiplexing)
- Operates in the 2.4GHz frequency range
- **Easy Installation** with the Setup Wizard
- **Web-based interface** for Managing and Configuring

Wireless Basics

D-Link wireless products are based on industry standards to provide easy-to-use and compatible high-speed wireless connectivity within your home, business or public access wireless networks. D-Link wireless products will allow you access to the data you want, when and where you want it. You will be able to enjoy the freedom that wireless networking brings.

A Wireless Local Area Network (WLAN) is a computer network that transmits and receives data with radio signals instead of wires. WLANs are used increasingly in both home and office environments, and public areas such as airports, coffee shops and universities. Innovative ways to utilize WLAN technology are helping people to work and communicate more efficiently. Increased mobility and the absence of cabling and other fixed infrastructure have proven to be beneficial for many users.

Wireless users can use the same applications they use on a wired network. Wireless adapter cards used on laptop and desktop systems support the same protocols as Ethernet adapter cards.

People use WLAN technology for many different purposes:

Mobility - Productivity increases when people have access to data in any location within the operating range of the WLAN. Management decisions based on real-time information can significantly improve worker efficiency.

Low Implementation Costs - WLANs are easy to set up, manage, change and relocate. Networks that frequently change can benefit from WLANs ease of implementation. WLANs can operate in locations where installation of wiring may be impractical.

Installation and Network Expansion - Installing a WLAN system can be fast and easy and can eliminate the need to pull cable through walls and ceilings. Wireless technology allows the network to go where wires cannot go - even outside the home or office.

Inexpensive Solution - Wireless network devices are as competitively priced as conventional Ethernet network devices.

Scalability - WLANs can be configured in a variety of ways to meet the needs of specific applications and installations. Configurations are easily changed and range from Peer-to-Peer networks suitable for a small number of users to larger Infrastructure networks to accommodate hundreds or thousands of users, depending on the number of wireless devices deployed.

Wireless Basics *(continued)*

The DWL-2100AP is compatible, in default mode, with the following wireless products:

- **D-Link *Air*Plus Xtreme G™DWL-G650**
  Wireless Cardbus Adapters used with laptop computers

- **D-Link *Air*Plus Xtreme G™ DWL-G520**
  Wireless PCI cards used with desktop computers

- The DWL-2100AP is also interoperable with other 802.11g and 802.11b standards-compliant devices.

Standards-Based Technology

The DWL-2100AP Wireless Access Point utilizes the **802.11b** and the **802.11g** standards.

The IEEE **802.11g** standard is an extension of the **802.11b** standard. It increases the data rate up to 54 Mbps (108Mbps in Super G mode) within the 2.4GHz band, utilizing **OFDM technology.**

This means that in most environments, within the specified range of this device, you will be able to transfer large files quickly or even watch a movie in MPEG format over your network without noticeable delays. This technology works by transmitting high-speed digital data over a radio wave utilizing **OFDM** (**O**rthogonal **F**requency **D**ivision **M**ultiplexing) technology. **OFDM** works by splitting the radio signal into multiple smaller sub-signals that are then transmitted simultaneously at different frequencies to the receiver. **OFDM** reduces the amount of **crosstalk** (interference) in signal transmissions. The D-Link DWL-2100AP will automatically sense the best possible connection speed to ensure the greatest speed and range possible.

802.11g offers the most advanced network security features available today, including: WPA , TKIP, AES and Pre-Shared Key mode.

Wireless Basics *(continued)*

Installation Considerations

The D-Link *Air*Plus Xtreme G™ DWL-2100AP lets you access your network, using a wireless connection, from virtually anywhere within its operating range. Keep in mind, however, that the number, thickness and location of walls, ceilings, or other objects that the wireless signals must pass through, may limit the range. Typical ranges vary depending on the types of materials and background RF (radio frequency) noise in your home or business. The key to maximizing wireless range is to follow these basic guidelines:

1. Keep the number of walls and ceilings between the DWL-2100AP and other network devices to a minimum - each wall or ceiling can reduce your DWL-2100AP's range from 3-90 feet (1-30 meters.) Position your devices so that the number of walls or ceilings is minimized.

2. Be aware of the direct line between network devices. A wall that is 1.5 feet thick (.5 meters), at a 45-degree angle appears to be almost 3 feet (1 meter) thick. At a 2-degree angle it looks over 42 feet (14 meters) thick! Position devices so that the signal will travel straight through a wall or ceiling (instead of at an angle) for better reception.

3. Building materials can impede the wireless signal - a solid metal door or aluminum studs may have a negative effect on range. Try to position wireless devices and computers with wireless adapters so that the signal passes through drywall or open doorways and not other materials.

4. Keep your product away (at least 3-6 feet or 1-2 meters) from electrical devices or appliances that generate RF noise.

Getting Started

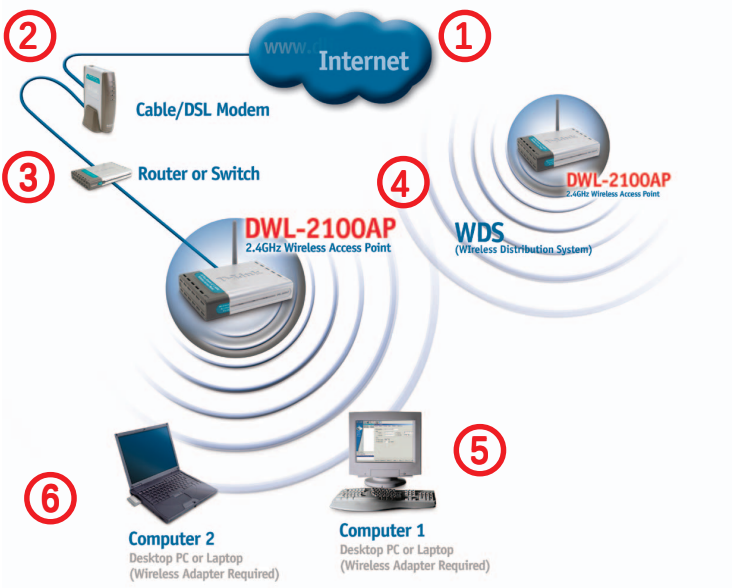
On the following pages we will show you an example of an **Infrastructure Network** incorporating the DWL-2100AP.

An **Infrastructure** network contains an access point or a wireless router. The **Infrastructure Network** example shown on the following page contains the following D-Link network devices (your existing network may be comprised of other devices):

- A wireless access point - **D-Link *Air*Plus Xtreme G™ DWL-2100AP**
- A wireless router - **D-Link *Air*Plus Xtreme G™ DI-624**
- A laptop computer with a wireless adapter - **D-Link *Air*Plus Xtreme G™ DWL-G650**
- A desktop computer with a wireless adapter - **D-Link *Air*Plus Xtreme G™ DWL-G520**
- A cable modem - **D-Link DCM-201**

Getting Started (continued)

Setting up a Wireless Infrastructure Network



Please remember that **D-Link *Air*Plus Xtreme G**™ *wireless devices are pre-configured to connect together, right out of the box, with their default settings.*

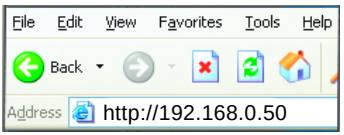
For a typical wireless setup at home (as shown above), please do the following:

1. You will need broadband Internet access (a Cable or DSL-subscriber line into your home or office).
2. Consult with your Cable or DSL provider for proper installation of the modem.
3. Connect the Cable or DSL modem to the DI-624 Router (*see the printed Quick Installation Guide included with your router.*)
4. Connect the Ethernet Broadband Router to the DWL-2100AP (*See the printed Quick Installation Guide included with the DWL-2100AP.*)
5. If you are connecting a desktop computer to your network, install the D-Link *Air*Plus Xtreme G™ DWL-G520 wireless PCI adapter into an available PCI slot on your desktop computer.
   (See the printed Quick Installation Guide included with the network adapter.)
6. Install the drivers for the D-Link DWL-G650 wireless Cardbus adapter into a laptop computer.
   (*See the printed Quick Installation Guide included with the DWL-G650.*)

Using the Configuration Menu

After you have completed the *Setup Wizard* (please see the *Quick Installation Guide* that came with the product) you can access the *Configuration* menu at any time by opening the Web browser and typing in the IP address of the DWL-2100AP. The DWL-2100AP default IP address is shown below:

- Open the Web browser
- Type in the **IP address** of the DWL-2100AP

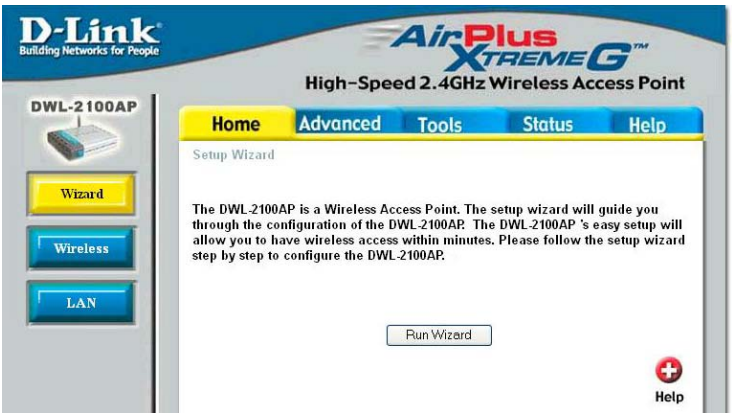


Note: if you have changed the default IP address assigned to the DWL-2100AP, make sure to enter the correct IP address.

- Type **admin** in the **User Name** field
- Leave the **Password** blank. *(However, if you have changed the password, please enter the correct password.)*
- Click **OK**

Home > Wizard

The **Home>Wizard** screen will appear. Please refer to the *Quick Installation Guide* for more information regarding the Setup Wizard.



Using the Configuration Menu (continued)

Home > Wireless

Wireless Band- Select 802.11g or 802.11b and 802.11g.

SSID- Service Set Identifier (SSID) is the name designated for a specific wireless local area network (WLAN). The SSID's factory default setting is **default.** The SSID can be easily changed to connect to an existing wireless network or to establish a new wireless network.

SSID Broadcast- Enable or Disable SSID Broadcast. Enabling this feature broadcasts the SSID across the network.

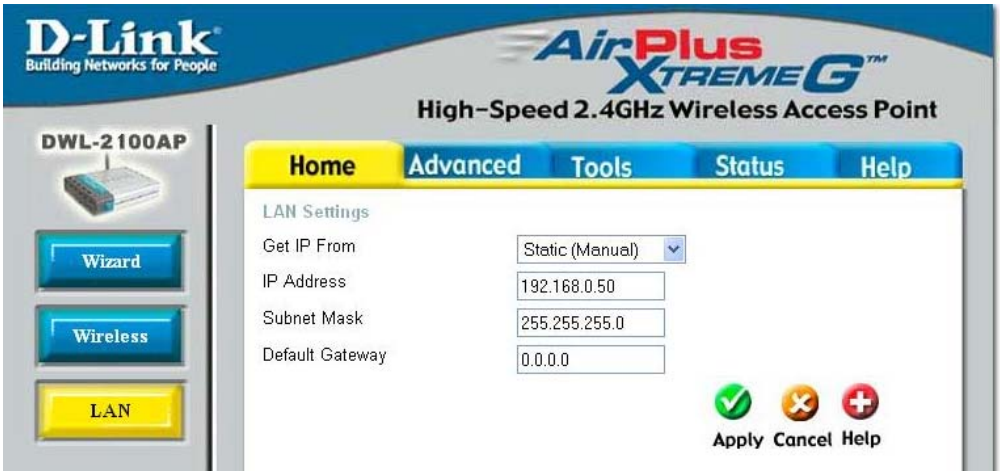
Channel- **6** is the default channel. All devices on the network must share the same channel.

Radio Frequency- The radio frequency will remain at 2.437 GHz .

Apply- Click **Apply** to save the changes.

Using the Configuration Menu (continued)

Home > LAN



LAN is short for Local Area Network. This is considered your internal network. These are the IP settings of the LAN interface for the DWL-2100AP. These settings may be referred to as private settings. You may change the LAN IP address if needed. The LAN IP address is private to your internal network and cannot be seen on the Internet.

Get IP From- Select **Static (Manual)** or **Dynamic (DHCP)** as the method you will use to assign an IP address to the DWL-2100AP.

IP Address- The IP address of the LAN interface. The default IP address is: **192.168.0.50**

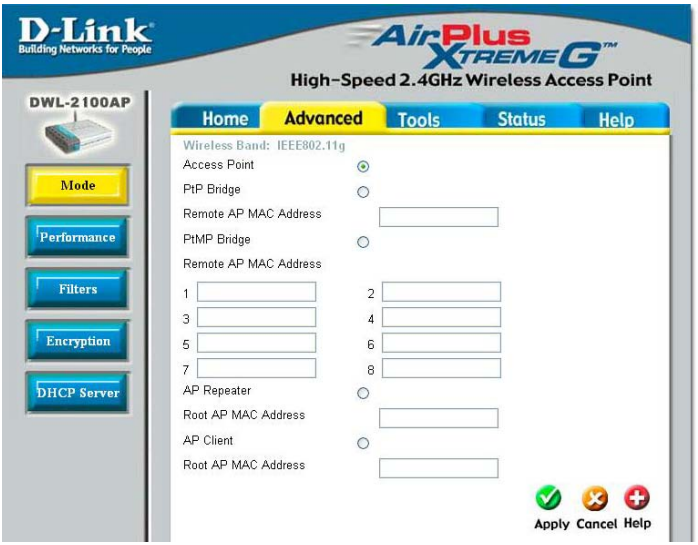
Subnet Mask- The subnet mask of the LAN interface. The default subnet mask is **255.255.255.0**

Default Gateway- This field is optional. Enter in the IP address of the router on your network.

Apply- Click **Apply** to save the changes.

Using the Configuration Menu (continued)

Advanced > Mode



The DWL-2100AP can be configured to perform in any of five modes: a Wireless Access Point; a Wireless Client; a Wireless Bridge; a Multi-Point Bridge; or a Repeater.

Access Point is the default setting. This mode is used to create a wireless LAN.

PtP Bridge will allow you to connect two LANs together. The wireless bridge will only work with another DWL-2100AP. Click to enable and enter the MAC address of the remote bridge.

PtMP Bridge will allow you to connect multiple wireless LANs together. Other wireless LANs must be using DWL-2100APs. Click to enable and enter up to 8 remote AP MAC addresses.

AP Repeater will allow you to repeat the wireless signal of the root AP. Click to enable and enter the MAC address of the root AP.

AP Client will transform any IEEE 802.3 Ethernet device (e.g., a computer, printer, etc.) into an 802.11b wireless client when it communicates with another DWL-2100AP that is acting as an AP. Click to enable and enter the MAC address of the root AP.

Apply - Click **Apply** if you have made any changes.

Find the **MAC address** of the DWL-2100AP that is acting as a **Remote Access Point** or a **Remote Bridge**, by going to **Status > Device Info** in the configuration utility of the remote DWL-2100AP. There you will find the MAC address.

MAC Address - Media Access Control Address
A unique hardware address that identifies a device on a network. It is assigned at the factory and cannot be changed. Usually you will find this address on a sticker on the device or on the packaging.

Using the Configuration Menu (continued)

Advanced > Performance

Wireless Band-
Select **802.11g only** or **802.11g and 802.11b.**

Frequency-
The frequency remains at **2.437 GHz**.

Channel-
Select from channels **1-11**.

Data Rate-
The **Data Rates** are Auto, 1Mbps, 2Mbps, 5.5Mbps, 6Mbps, 9Mbps, 11Mbps, 12Mbps, 18Mbps, 24Mbps, 36Mbps, 48Mbps, 54Mbps.

Beacon Interval- Beacons are packets sent by an access point to synchronize a network. Specify a beacon interval value. The default (100) is recommended.

DTIM- *(Delivery Traffic Indication Message)*- **3** is the default setting. DTIM is a countdown informing clients of the next window for listening to broadcast and multicast messages.

Fragment Length- The fragmentation threshold, which is specified in bytes, determines whether packets will be fragmented. Packets exceeding the 2346 byte setting will be fragmented before transmission. 2346 is the default setting

RTS Length- This value should remain at its default setting of 2,346. If you encounter inconsistent data flow, only minor modifications to the value range between 256 and 2,346 are recommended

Transmit Power- Choose full, half (-3dB), quarter (-6dB), eighth (-9dB), minimum power.

Super G Mode- Super G is a group of performance enhancement features that increase end user application throughput in an 802.11g network. Super G is backwards compatible to standard 802.11g devices. For top performance, all wirelss devices on the network should be Super G capable. Select either Disabled, Super G without Turbo, Super G with Dynamic Turbo, or Super G with Static Turbo.

Disabled- Standard 802.11g support, no enhanced capabilities.

Using the Configuration Menu (continued)

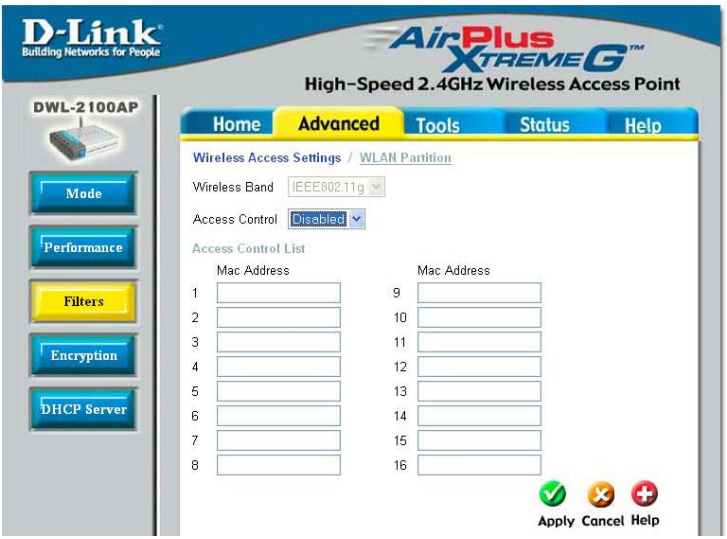
Super G Mode (continued)

Super G without Turbo- Capable of Packet Bursting, FastFrames, Compression, and no Turbo mode.

Super G with Dynamic Turbo- Capable of Packet Bursting, FastFrames, Compression, and Dynamic Turbo. This setting is backwards compatible with non-Turbo (legacy) devices. Dynamic Turbo mode is only enabled when all devices on the wireless network are configured with Super G with Dynamic Turbo enabled.

Super G with Static Turbo- Capable of Packet Bursting, FastFrames, Compression, and Static Turbo. This setting is not backwards compatible with non-Turbo (legacy) devices. Static turbo mode is always on and is only enabled when all the devices on the wireless network are configured with Super G with Static Turbo enabled.

Advanced > Filters



The following fields are available for configuration in this window:

Access Control- Select **Disabled** to disable the filters function.
Select **Accept** to accept only those devices with MAC addresses in the Access Control List.
Select **Reject** to reject the devices with MAC addresses in the Access Control List.

Access Control List- The MAC addresses in this list can be accepted or rejected for inclusion in the network, depending upon the Access Control selection.

Apply- Click **Apply** to save the changes

Using the Configuration Menu (continued)

Advanced > Encryption

Hexadecimal *digits consist of the numbers 0-9 and the letters A-F*

ASCII *(American Standard Code for Information Interchange) is a code for representing English letters as numbers from 0-127*

Wireless Band- 802.11g is selected here

Authentication- Select **Open System** to communicate the key across the network.
Select **Shared Key** to limit communication to only those devices that share the same WEP settings.
Select **Open System/Shared Key** to communicate the key and require identical WEP settings to communicate.
When you select **WPA**, you will be directed to the screen shown on the next page.

Encryption- Select **Disabled** or **Enabled.**

Key Type- Select **HEX** or **ASCII**.

Key Size- Select **64-, 128-, 152-**bits.

Valid Key- Select the **1st** through the **4th** key to be the active key.

Key Table- Input up to **four keys** for encryption. You will select one of these keys in the valid key field.

Apply- Click **Apply** to save changes.

Using the Configuration Menu (continued)

Advanced > Encryption > WPA

WPA mode- Select **PSK** (the Pre-Shared Key mode of WPA does not require the inclusion of a RADIUS server in your network) or **EAP** (Extensible Authentication Protocol is a general authentication protocol that is used in conjunction with a RADIUS server in the network).

Passphrase- If you selected PSK you will need to enter a **Passphrase** in this field.

Cipher Type- If you selected **EAP** you will need to select a Cipher (EAP) Type: **Auto**, **AES**, **or TKIP**.

Group Key Update Interval- If you selected PSK you will need to enter a figure in this field.

Security Server Settings (required with EAP)

Domain Name Server IP address- Input the IP address of the DNS server.

Domain Name Server- Enter the domain name of the server.

RADIUS Server- Enter the IP address of the RADIUS server.

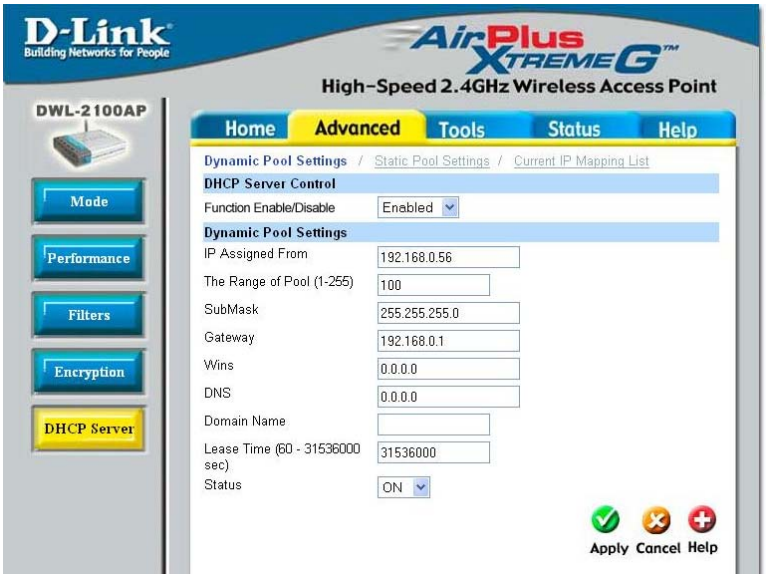
RADIUS Port- Enter the port on your AP dedicated to the RADIUS server.

RADIUS Secret- Enter the **secret** phrase..

Apply- Click Apply if you have made any changes.

Using the Configuration Menu (continued)

Advanced > DHCP Server



DHCP Server Control-

Select **Enabled** to configure the Dynamic settings for the network.

IP Assigned From-

Input the first IP address available for assignment in your network.

The Range of Pool (1-255)-

Enter the number of IP addresses available for assignment.

SubMask- Enter the subnet mask.

Gateway- Enter the IP address of the router on the network.

Wins- Windows Internet Naming Service is a system that determines the IP address of a network computer that has a dynamically assigned IP address.

DNS- Enter the IP address of the DNS server. The DNS server translates domain names such as www.dlink.com into IP addresses.

Domain Name- Enter the Domain Name of the DWL-2100AP.

Lease Time (60-31536000 sec)- Enter the number of seconds before the IP addresses will be changed.

Status- Turn the **Dynamic Pool Settings** ON or OFF here.

Apply- Click Apply if you have made any changes.

Using the Configuration Menu (continued)

Tools > Admin

User Name- Enter a user name; **admin** is the default setting.

Old Password- To change your password, enter your old password here

New Password- Enter your new password here.

Confirm New Password- Enter your new password again.

Using the Configuration Menu (continued)

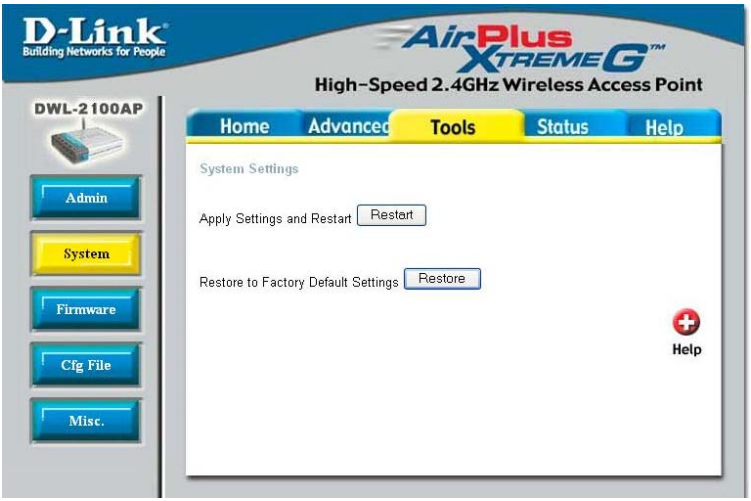
Tools > System

Apply Settings and Restart-

Click **Restart** to apply the system settings and restart the DWL-2100AP.

Restore to Factory Default Settings-

Click **Restore** to return the DWL-2100AP to its factory default settings.



Tools > Firmware

Update File-

After you have downloaded the most recent version of the firmware from www.support.dlink.com you can **browse** your hard drive to locate the downloaded file and click **OK** to update the firmware.

Using the Configuration Menu (continued)

Tools > Cfg File

Update File-

Browse for the configuration settings that you have saved to your hard drive. Click **OK** when you made your selection.

Load Settings to the Local Hard Drive-

Click **OK** to load the selected settings.

Tools > Misc.

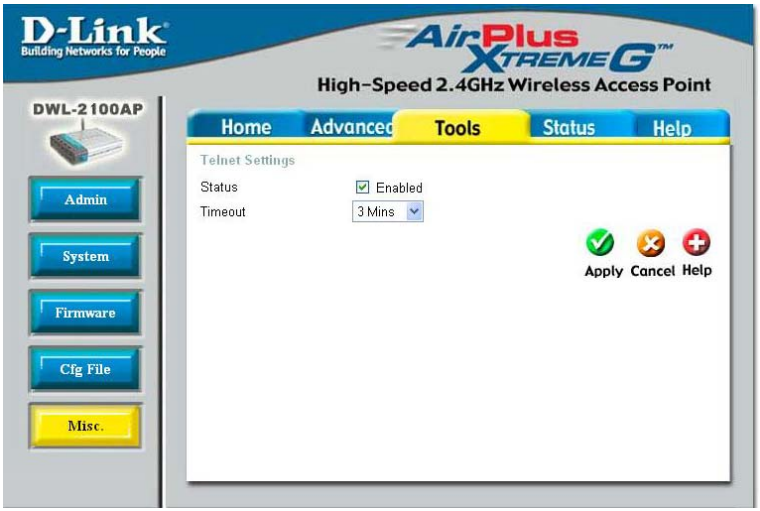
Telnet Settings

Status-

Click to Enable a Telnet session.

Timeout-

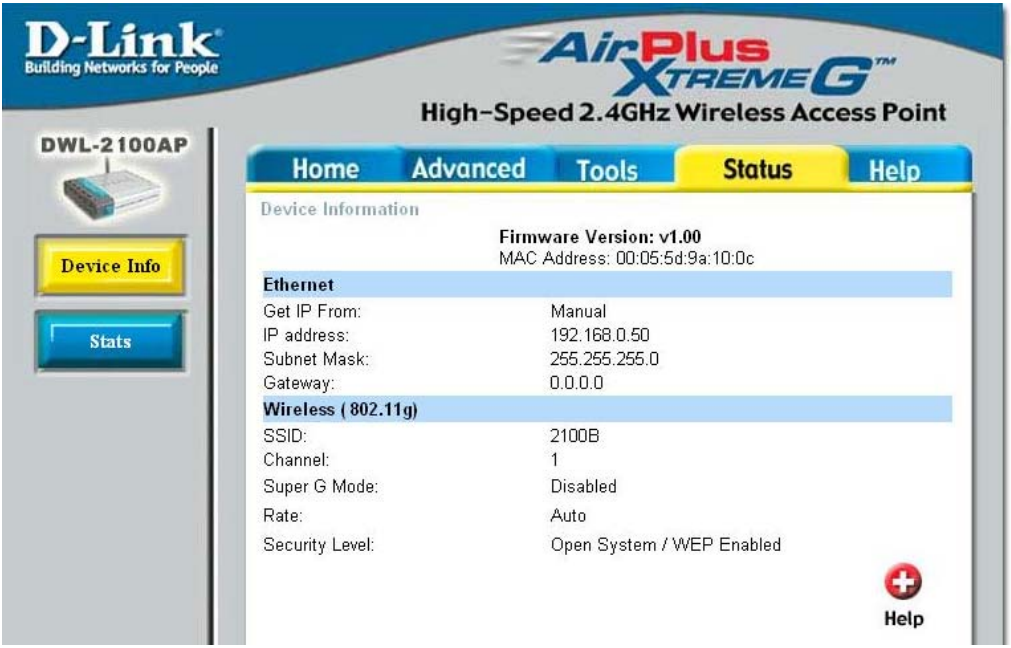
Select a time period after which a session timeout will occur.



Telnet is a program that allows you to control your network from a single PC.

Using the Configuration Menu (continued)

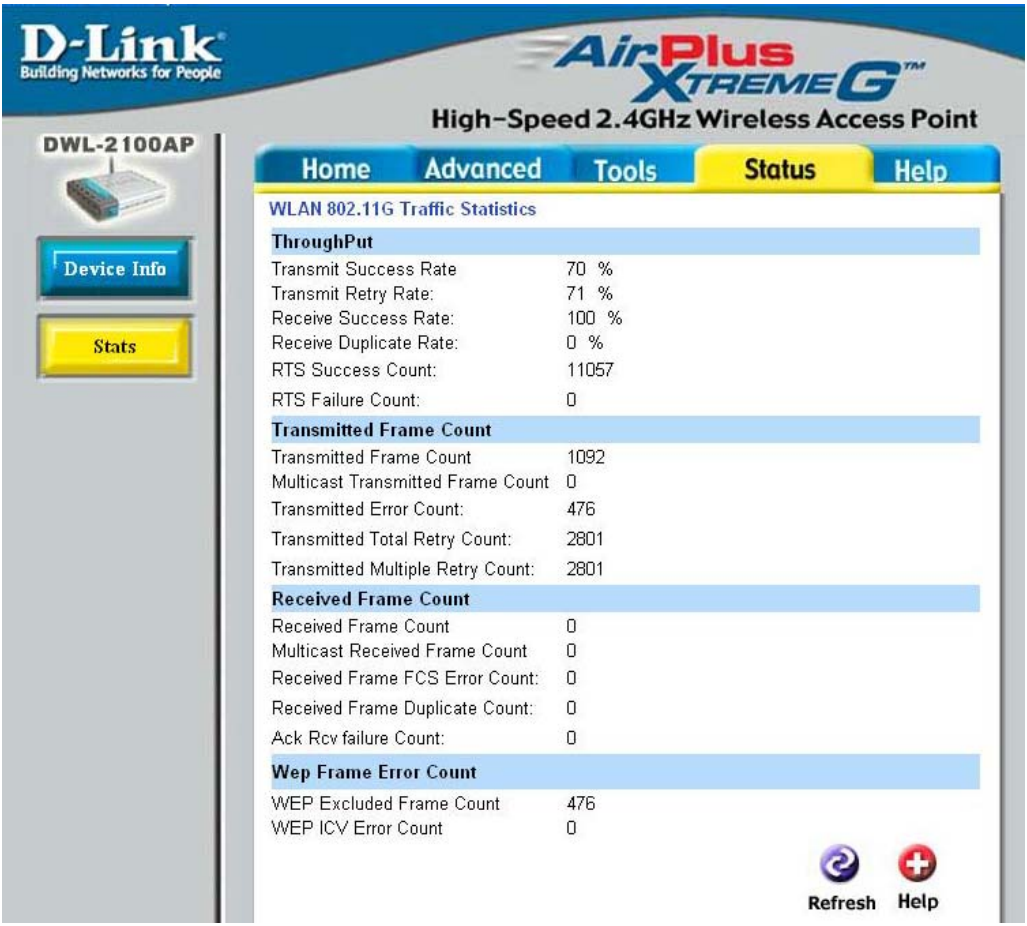
Status > Device Info



This window displays the settings of the DWL-2100AP, as well as the Firmware version and the MAC address.

Using the Configuration Menu (continued)

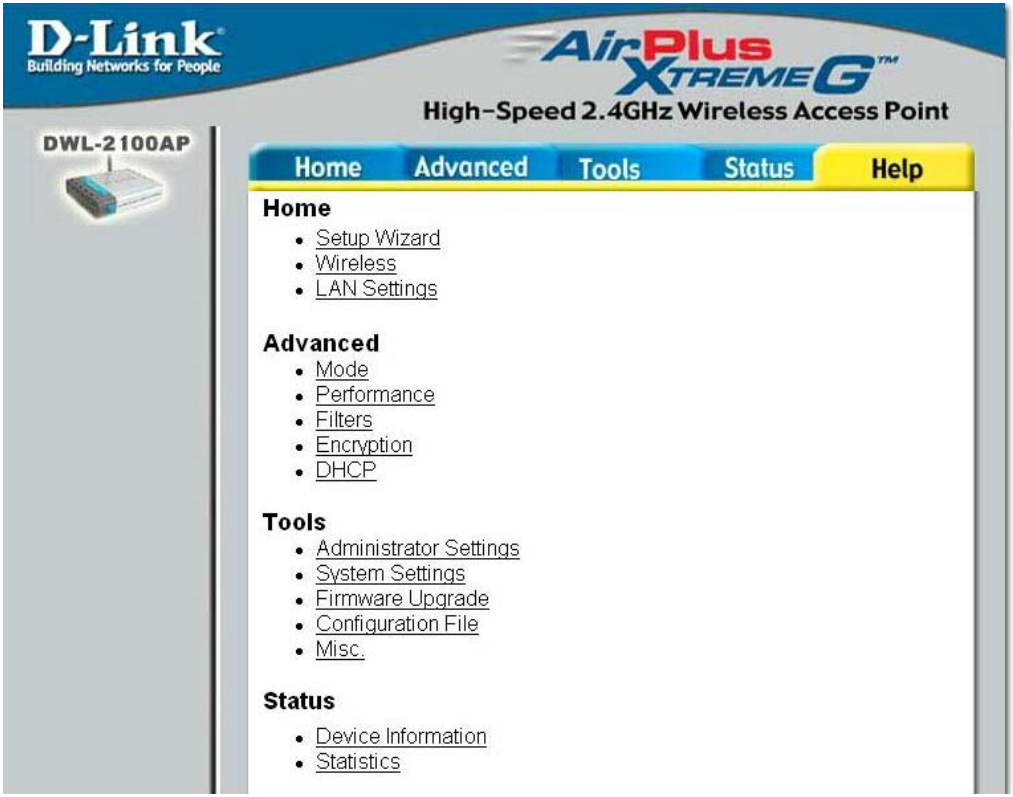
Status > Stats



This window displays the statistics of the wireless local area network.

Using the Configuration Menu (continued)

Help



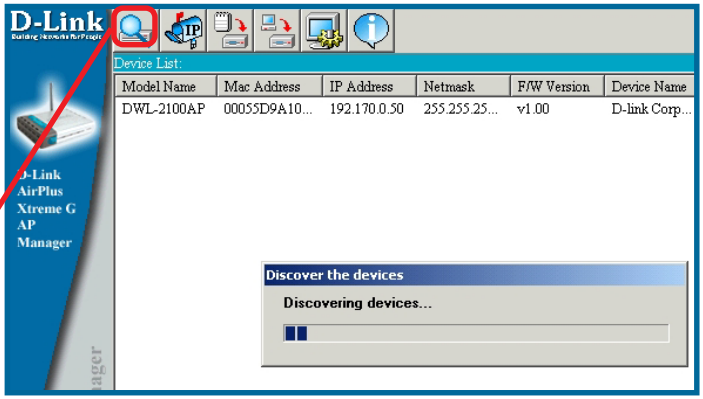
At this window you can access the help screens for the topics listed.

Using the AP Manager

The **AP Manager** is a convenient tool to manage the configuration of your network from a central computer. With the **AP Manager** there is no need to configure each device separately.

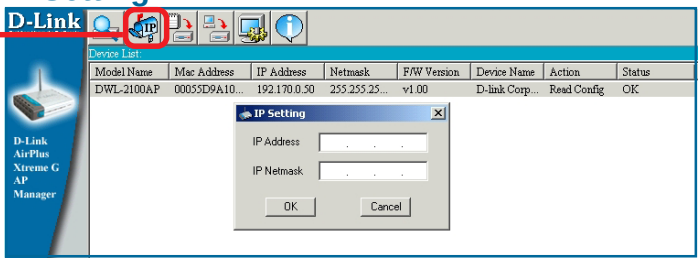
Discover the devices

Click on this icon to begin **discovering the devices** on the network for configuration.



IP Setting

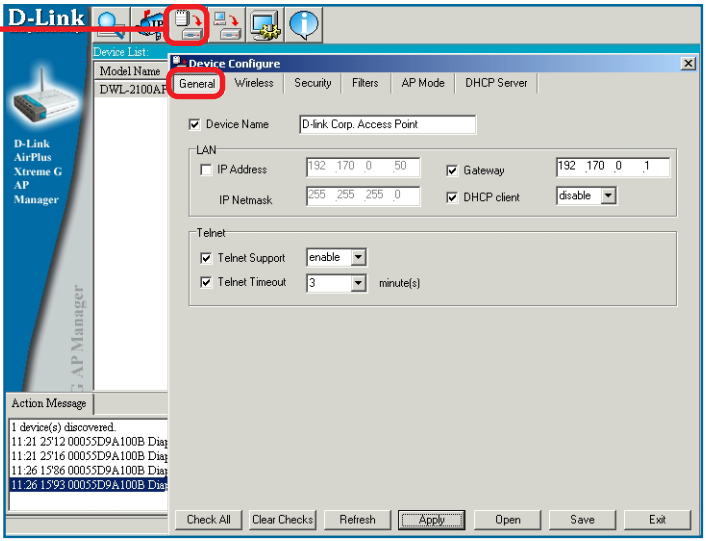
Click on this icon to configure the **IP address** in the dialogue box shown here.



Device Configure>General

Click on this icon to access the configuration properties as shown here. Shown here is the **General** configuration screen.

Please refer to **Using the Configuration Menu** in the previous chapter, for more detailed information about any of the configuration properties in the **AP Manager.**

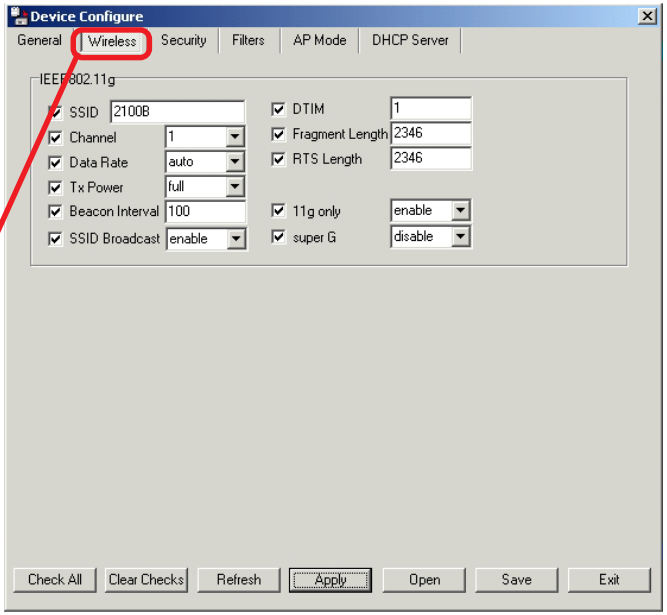


Using the AP Manager (continued)

Click on this icon in the AP Manager menu bar to access the **Device Configuration** screens shown on this page.

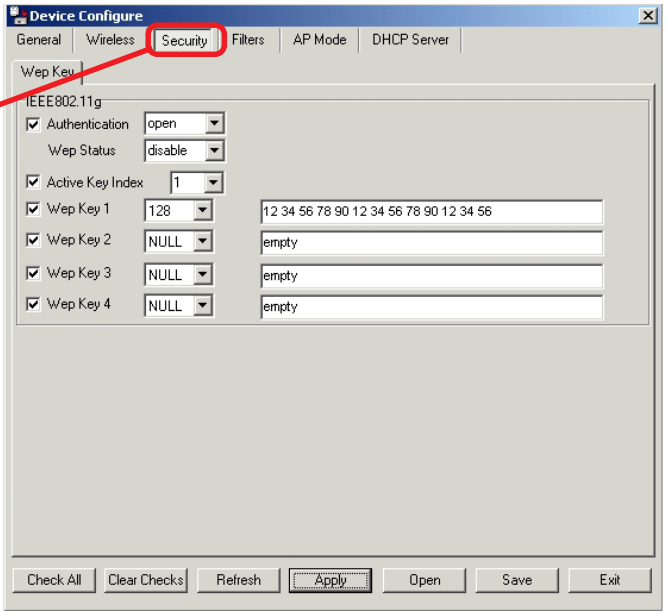
The **Wireless** configuration screen is shown here.

Device Configure>Wireless



The **Security** configuration screen is shown here.

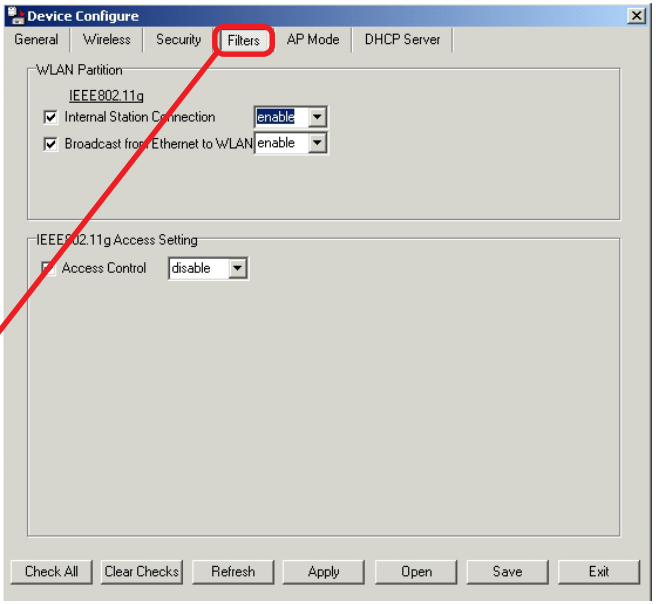
Device Configure>Security



Using the AP Manager (continued)

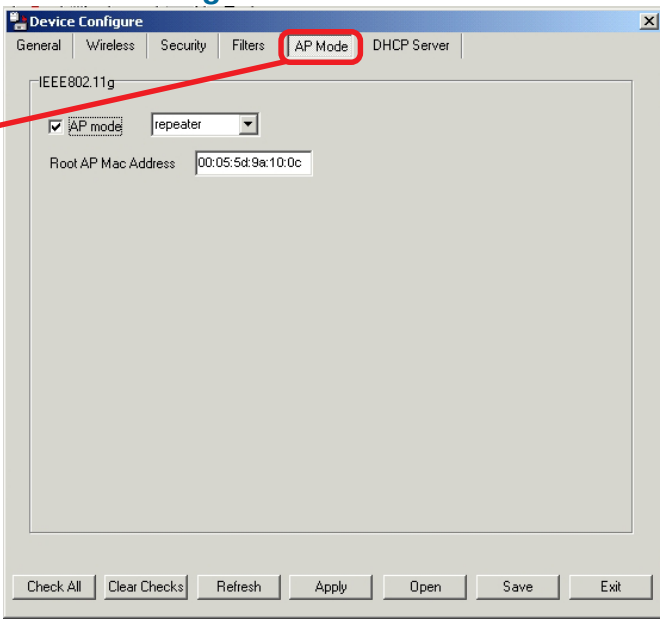
Click on this icon in the AP Manager menu bar to access the **Device Configuration** screens shown on this page.

Device Configure>Filters



The **Filters** configuration screen is shown here.

Device Configure>AP Mode



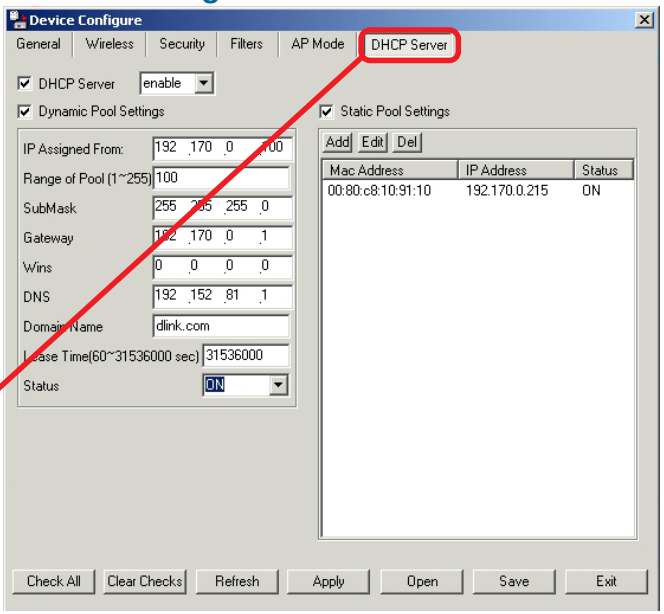
The **AP Mode** configuration screen is shown here.

Using the AP Manager (continued)

Device Configure>DHCP Server

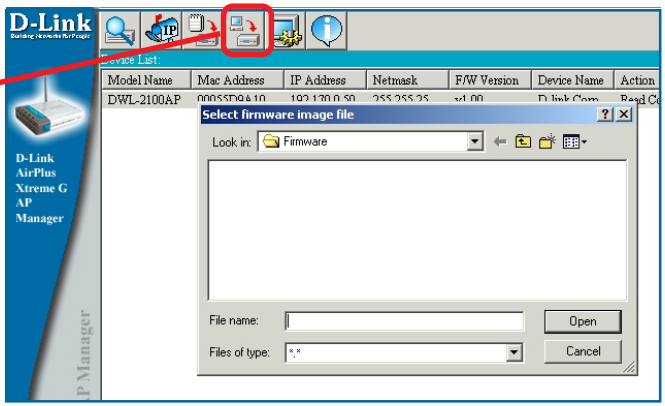
Click on this icon in the AP Manager menu bar to access the **Device Configuration** screens shown on this page.

The **Filters** configuration screen is shown here.



Firmware

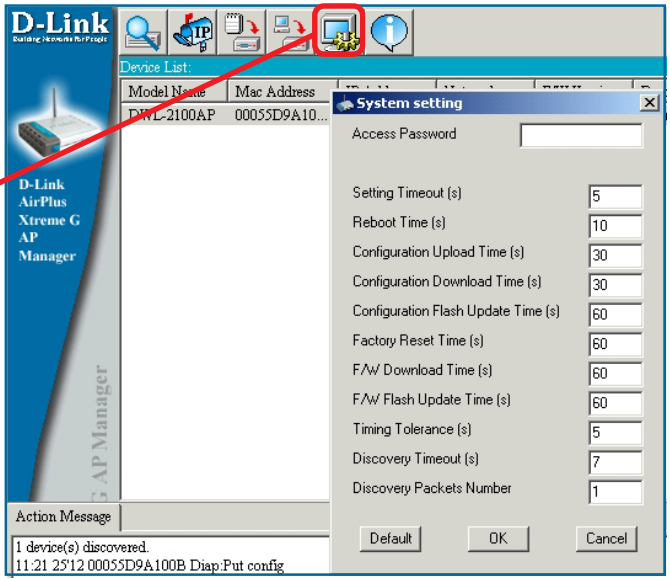
Click on this icon in the AP Manager menu bar to access the **Firmware Download** screen shown here.



Using the AP Manager (continued)

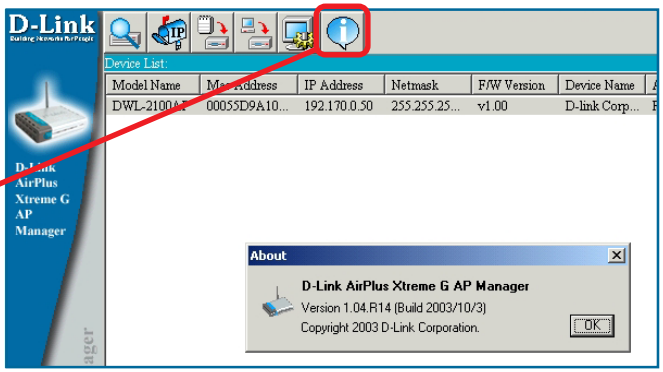
System

Click on this icon in the AP Manager menu bar to access the **System Setting** screen shown here.



About

Click on this icon in the AP Manager menu bar to access the **About** screen shown here.



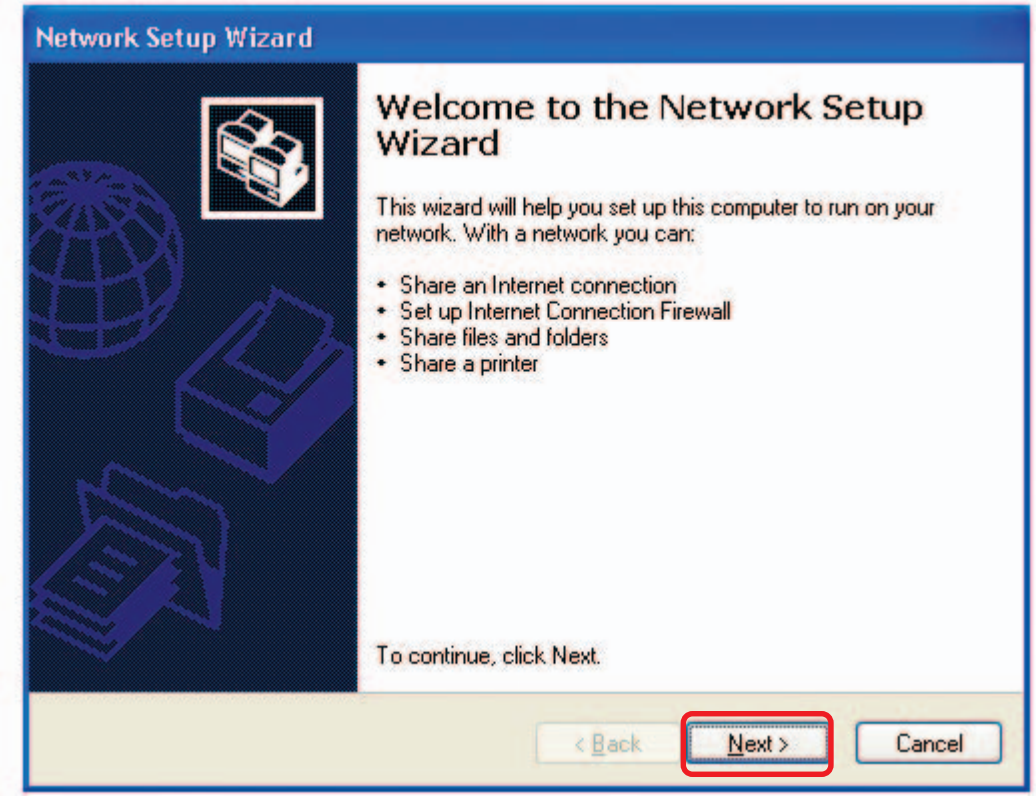
Networking Basics

Using the Network Setup Wizard in Windows XP

In this section you will learn how to establish a network at home or work, using **Microsoft Windows XP.**

Note: Please refer to websites such as http://www.homenethelp.com and http://www.microsoft.com/windows2000 for information about networking computers using Windows 2000,/Me/98SE.

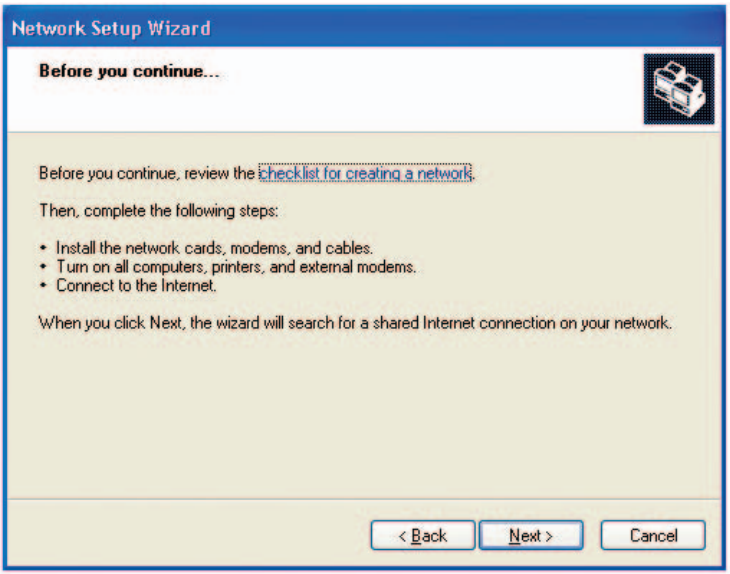
Go to **Start>Control Panel>Network Connections**
Select **Set up a home or small office network**



When this screen appears, click **Next.**

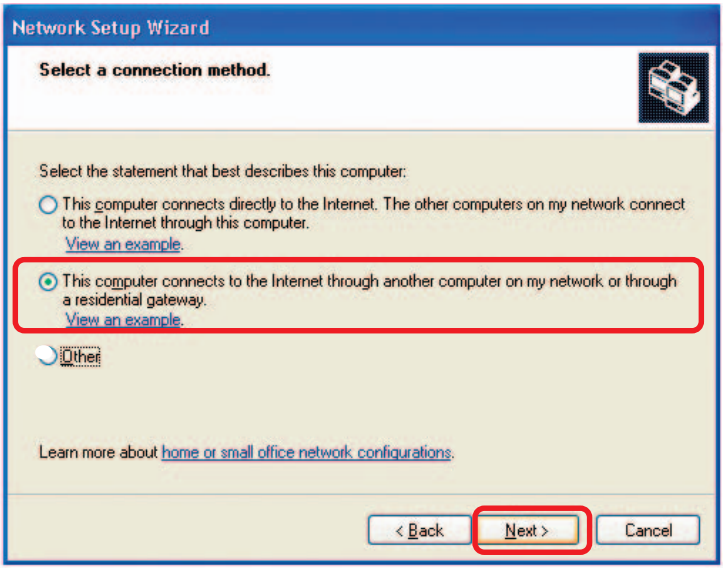
Networking Basics (continued)

Please follow all the instructions in this window:



Click **Next**.

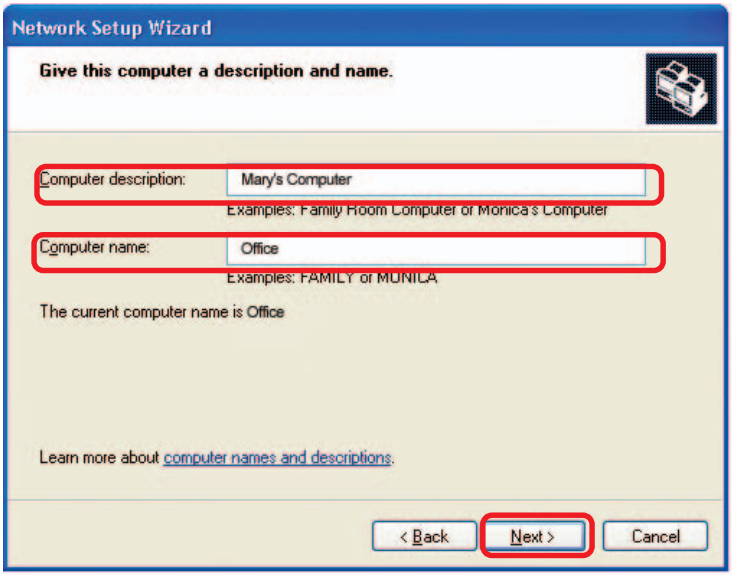
In the following window, select the best description of your computer. If your computer connects to the Internet through a router, select the second option as shown.



Click **Next**.

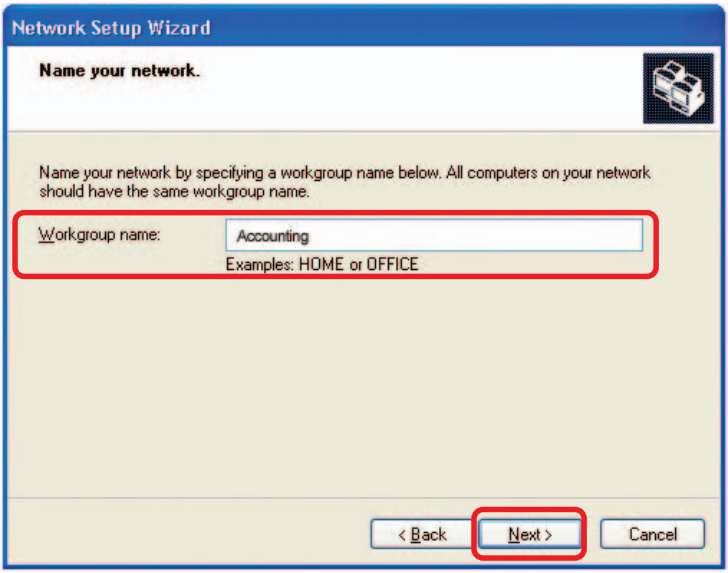
Networking Basics (continued)

Enter a **Computer description** and a **Computer name** (optional.)



Click **Next**

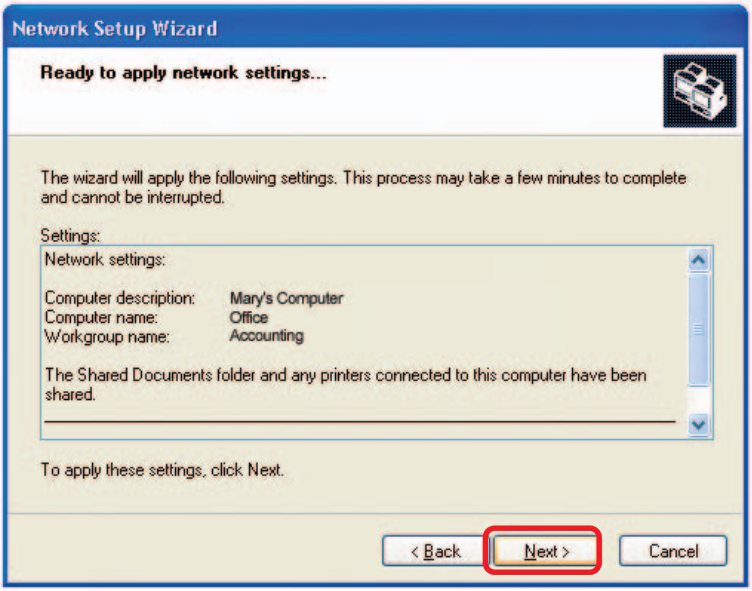
Enter a **Workgroup** name. All computers on your network should have the same **Workgroup name.**



Click **Next**

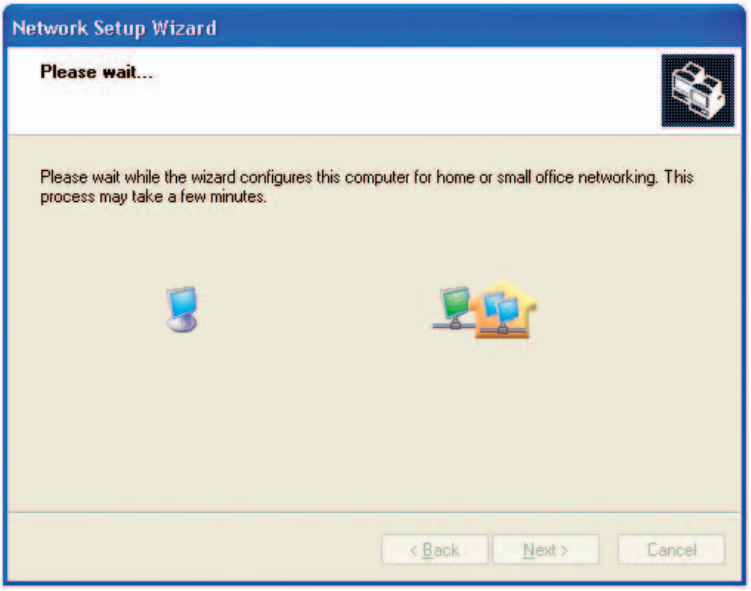
Networking Basics (continued)

Please wait while the **Network Setup Wizard** applies the changes.



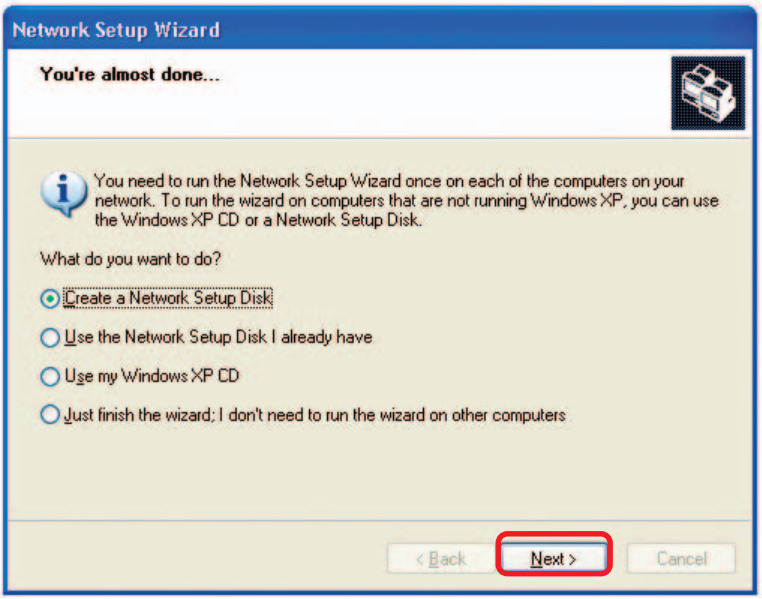
When the changes are complete, Click **Next**.

Please wait while the **Network Setup Wizard** configures the computer. This may take a few minutes.

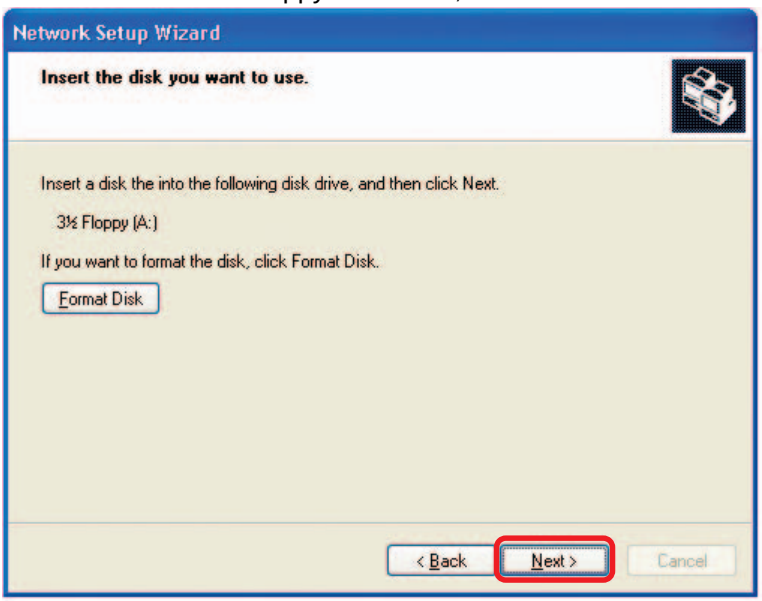


Networking Basics (continued)

In the window below, select the option that fits your needs. In this example, **Create a Network Setup Disk** has been selected. You will run this disk on each of the computers on your network. Click **Next**.

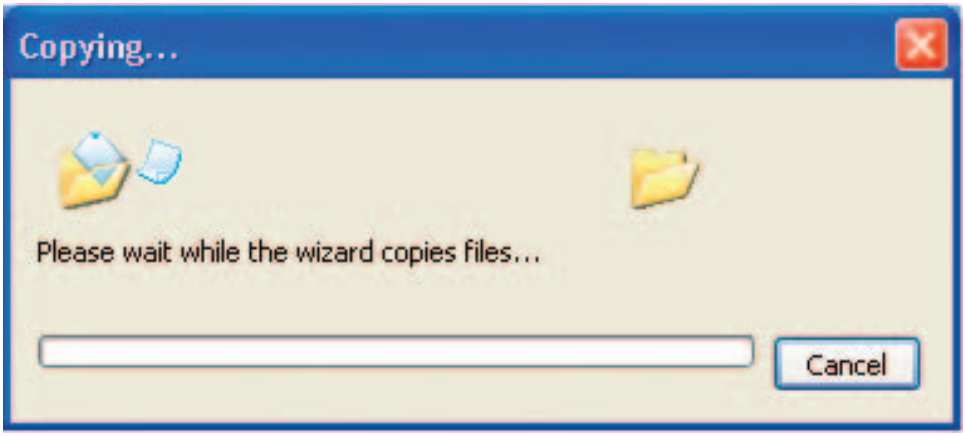


Insert a disk into the Floppy Disk Drive, in this case drive **A.**

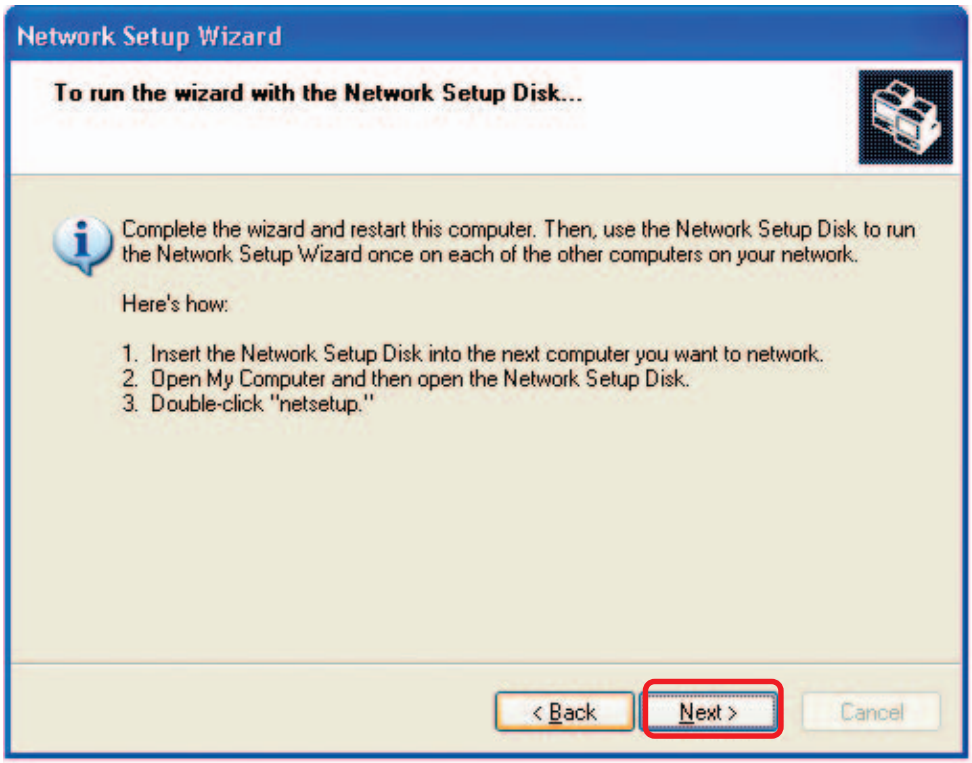


Click **Next**.

Networking Basics (continued)

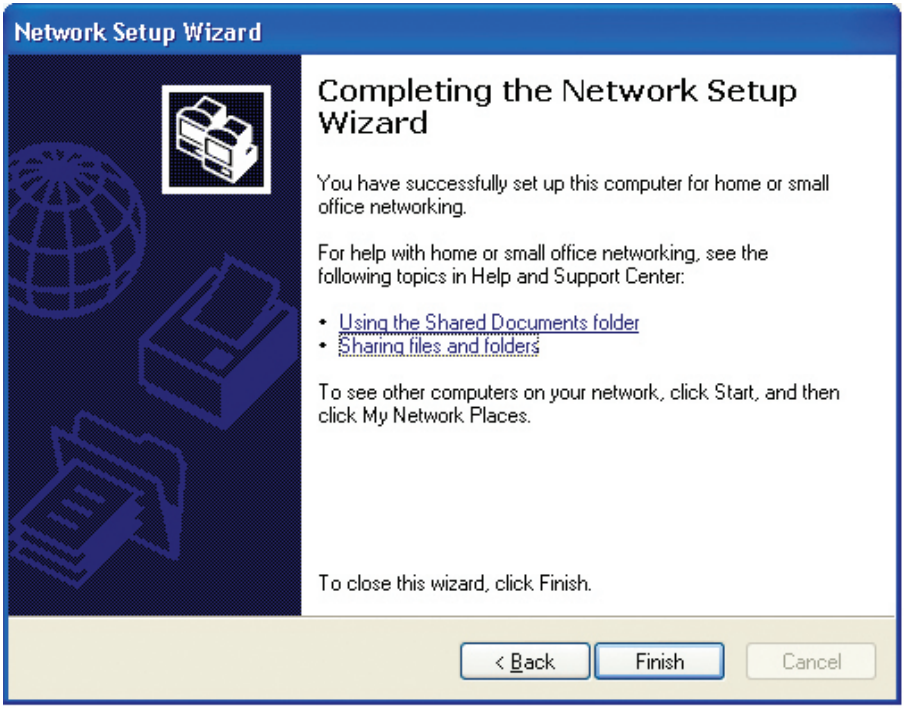


Please read the information under **Here's how** in the screen below. After you complete the **Network Setup Wizard** you will use the **Network Setup Disk** to run the **Network Setup Wizard** once on each of the computers on your network. Click **Next.**

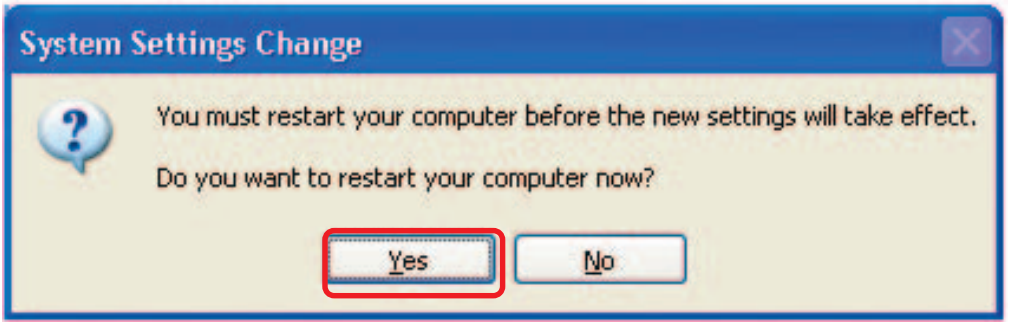


Networking Basics (continued)

Please read the information on this screen, then click **Finish** to complete the **Network Setup Wizard**.



The new settings will take effect when you restart the computer. Click **Yes** to restart the computer.



You have completed configuring this computer. Next, you will need to run the **Network Setup Disk** on all the other computers on your network. After running the **Network Setup Disk** on all your computers, your new wireless network will be ready to use.

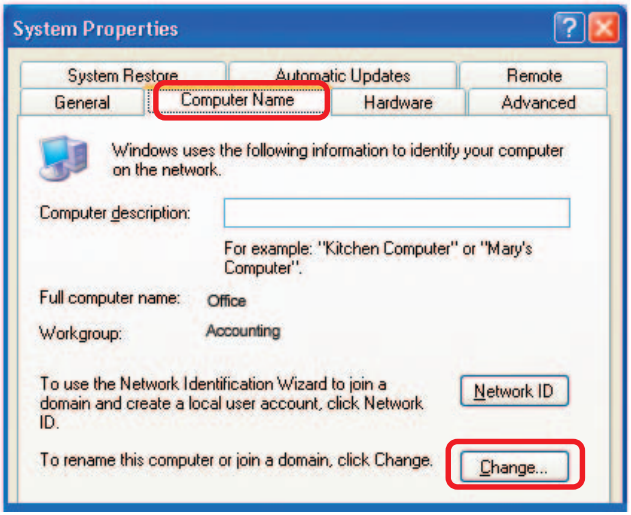
Networking Basics (continued)

Naming your Computer

To name your computer using **Windows XP**, please follow these directions:

- Click **Start** (in the lower left corner of the screen)
- **Right-click** on **My Computer**
- Select **Properties**

- Select the **Computer Name Tab** in the System Properties window.



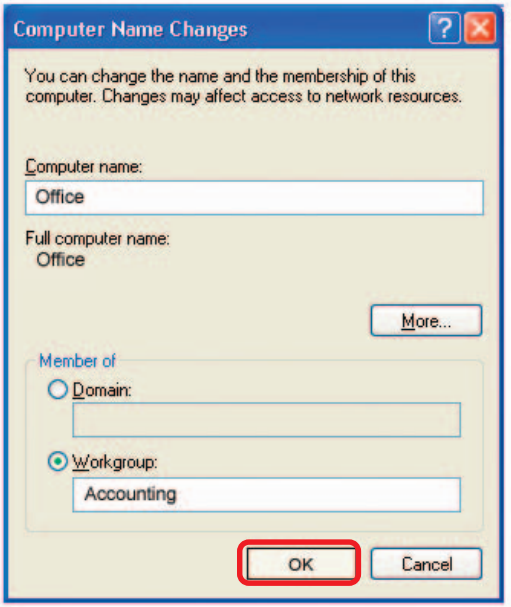
- You may enter a **Computer Description** if you wish; this field is optional.

- To rename the computer and join a domain, click **Change**.

Networking Basics (continued)

Naming your Computer

- In this window, enter the **Computer name**
- Select **Workgroup** and enter the name of the **Workgroup**
- All computers on your network must have the same **Workgroup** name.
- Click **OK**



Checking the IP Address in Windows XP

The adapter-equipped computers in your network must be in the same IP address range (see *Getting Started* in this manual for a definition of IP address range.) To check on the IP address of the adapter, please do the following:

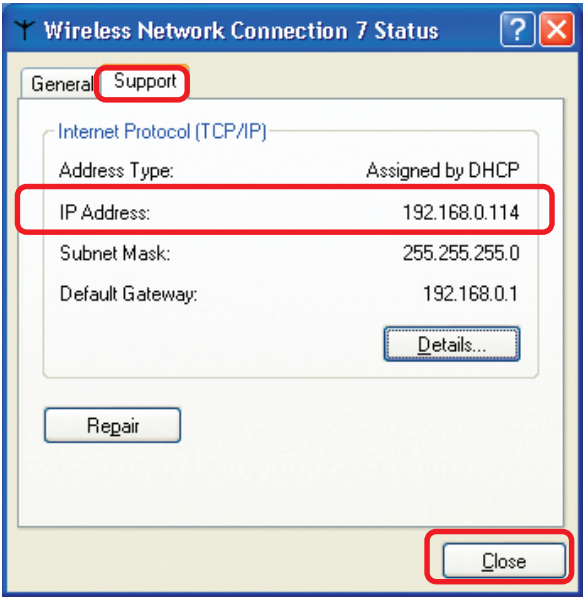
- Right-click on the ***Local Area Connection icon*** in the task bar
- Click on **Status**

Networking Basics (continued)

Checking the IP Address in Windows XP

This window will appear.

- Click the **Support tab**
- Click **Close**

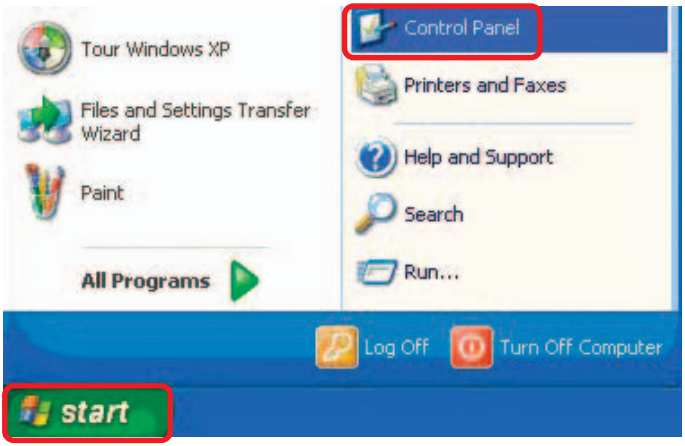


Assigning a Static IP Address in Windows XP/2000

Note: DHCP-capable routers will automatically assign IP addresses to the computers on the network, using DHCP (Dynamic Host Configuration Protocol) technology. If you are using a DHCP-capable router you will not need to assign static IP addresses.

If you are not using a DHCP capable router, or you need to assign a static IP address, please follow these instructions:

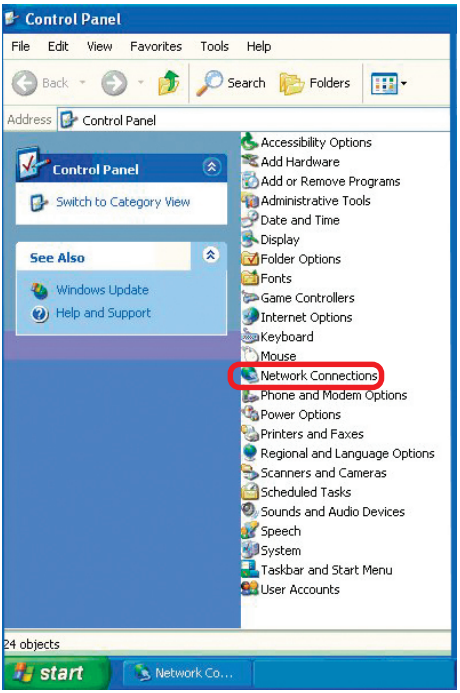
- Go to **Start**
- Double-click on **Control Panel**



Networking Basics (continued)

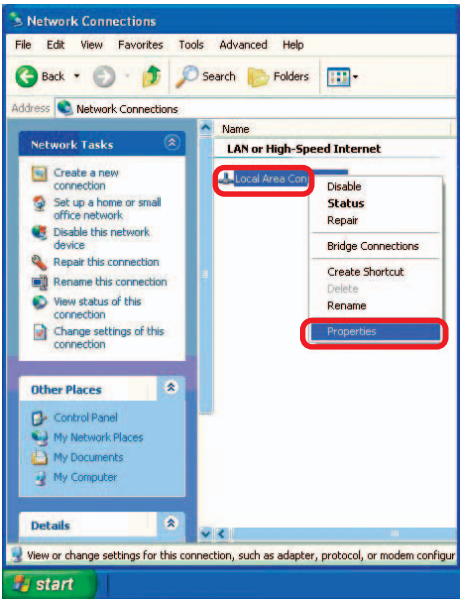
Assigning a Static IP Address in Windows XP/2000

- Double-click on **Network Connections**



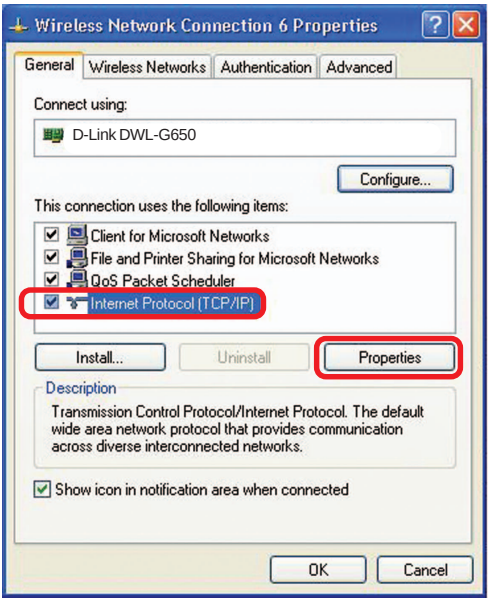
- Right-click on **Local Area Connections**

- Double-click on **Properties**

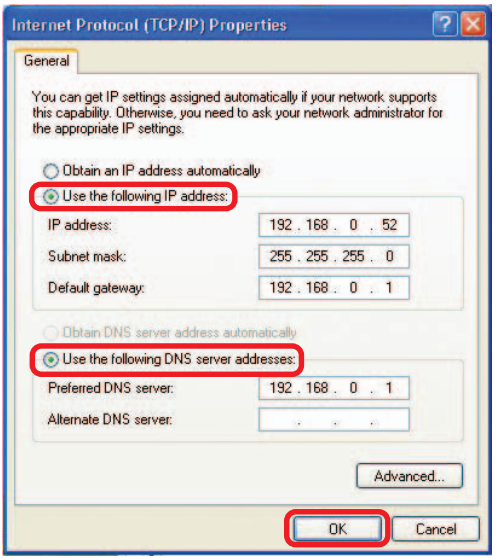


Networking Basics (continued)

Assigning a Static IP Address in Windows XP/2000



- Click on **Internet Protocol (TCP/IP)**
- Click **Properties**
- Input your **IP address and subnet mask.** (The IP addresses on your network must be within the same range. For example, if one computer has an IP address of 192.168.0.2, the other computers should have IP addresses that are sequential, like 192.168.0.3 and 192.168.0.4. The subnet mask must be the same for all the computers on the network.)



- Input your DNS server addresses. (Note: If you are entering a DNS server, you must enter the IP Address of the Default Gateway.)

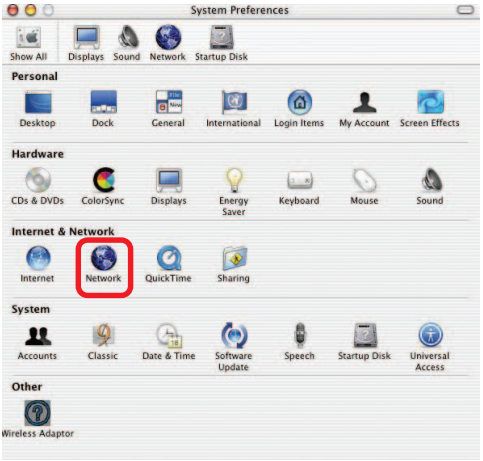
The DNS server information will be supplied by your ISP (Internet Service Provider.)

- Click **OK**

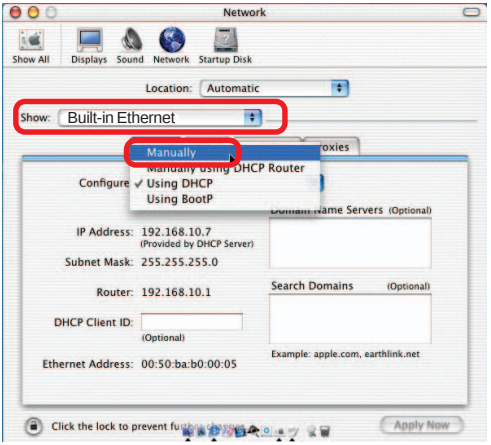
Networking Basics (continued)

Assigning a Static IP Address with Macintosh OSX

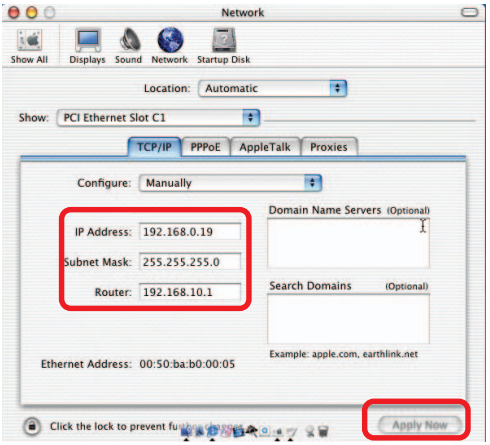
- Go to the **Apple Menu** and select **System Preferences**
- Click on **Network**



- Select **Built-in Ethernet** in the **Show** pull-down menu
- Select **Manually** in the **Configure** pull-down menu



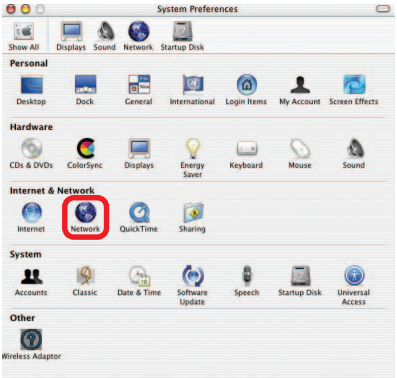
- Input the **Static IP Address**, the **Subnet Mask** and the **Router IP Address** in the appropriate fields
- Click **Apply Now**



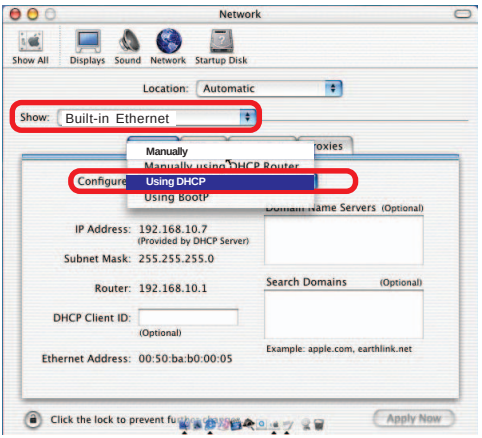
Networking Basics (continued)

Selecting a Dynamic IP Address with Macintosh OSX

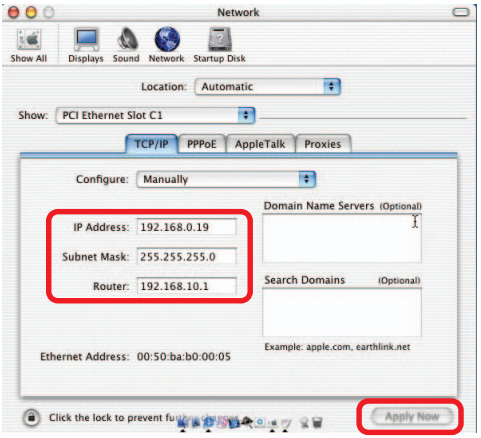
- Go to the **Apple Menu** and select **System Preferences**
- Click on **Network**



- Select **Built-in Ethernet** in the **Show** pull-down menu
- Select **Using DHCP** in the **Configure** pull-down menu



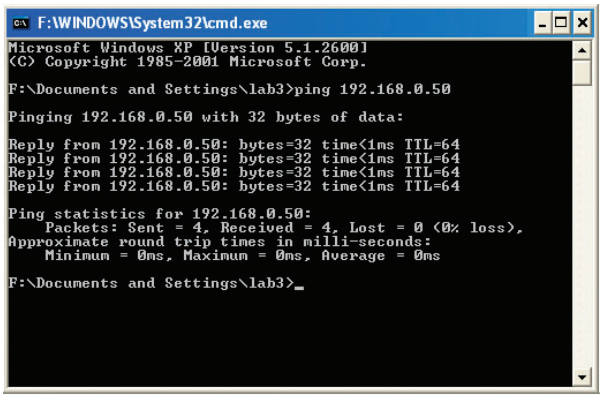
- Click **Apply Now**
- The **IP Address, Subnet mask**, and the **Router's IP Address** will appear in a few seconds



Networking Basics (continued)

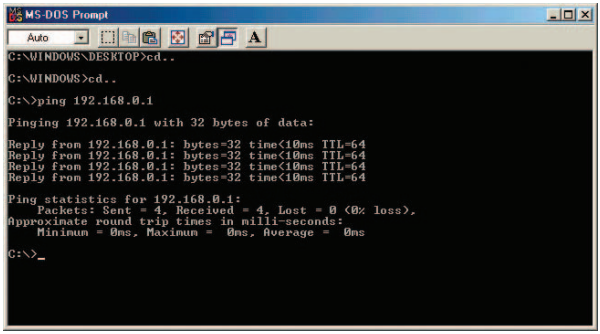
Checking the Wireless Connection by Pinging in Windows XP/ 2000

- Go to **Start** > **Run** > type **cmd**. A window similar to this one will appear. Type **ping xxx.xxx.xxx.xxx**, where **xxx** is the **IP address** of the wireless router or access point. A good wireless connection will show four replies from the wireless router or access point, as shown.



Checking the Wireless Connection by Pinging in Windows Me/98

- Go to **Start** > **Run** > type **command**. A window similar to this will appear. Type **ping xxx.xxx.xxx.xxx** where **xxx** is the **IP address** of the wireless router or access point. A good wireless connection will show four replies from the wireless router or access point, as shown.



Troubleshooting

This Chapter provides solutions to problems that can occur during the installation and operation of the DWL-2100AP Wireless Access Point. We cover various aspects of the network setup, including the network adapters. Please read the following if you are having problems.

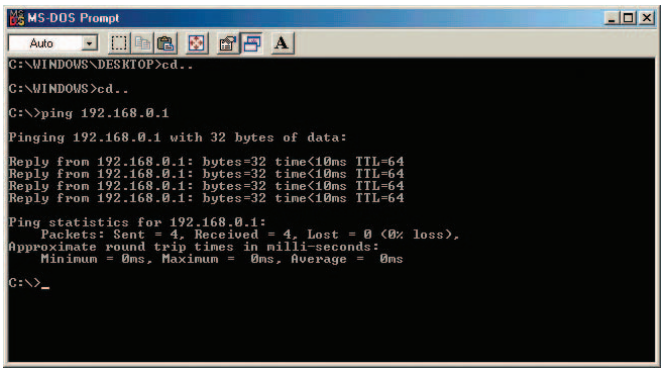
Note: It is recommended that you use an Ethernet connection to configure the DWL-2100AP Wireless Access Point.

1.The computer used to configure the DWL-2100AP cannot access the configuration menu.

- Check that the **Ethernet LED** on the DWL-2100AP is **ON**. If the **LED** is not **ON**, check that the cable for the Ethernet connection is securely inserted.
- Check that the Ethernet adapter is working properly. Please see item 3 (***Check that the drivers for the network adapters are installed properly***) in this **Troubleshooting** section to check that the drivers are loaded properly.
- Check that the **IP address** is in the same range and subnet as the DWL-2100AP. Please see ***Checking the IP Address in Windows XP*** in the **Networking Basics** section of this manual.

Note: The IP address of the DWL-2100AP is 192.168.0.50. All the computers on the network must have a unique IP address in the same range, e.g., 192.168.0.x. Any computers that have identical IP addresses will not be visible on the network. They must all have the same subnet mask, e.g., 255.255.255.0

- Do a **Ping test** to make sure that the DWL-2100AP is responding. Go to **Start**>**Run**>Type **Command**>Type **ping 192.168.0.50.** A successful ping will show four replies.

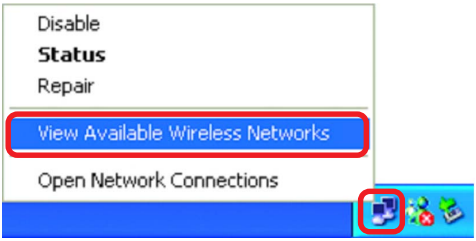


Note: If you have changed the default IP address, make sure to ping the correct IP address assigned to the DWL-2100AP.

Troubleshooting (continued)

2. The wireless client cannot access the Internet in Infrastructure mode.

Make sure the wireless client is associated and joined with the correct access point. To check this connection: **Right-click** on the **local area connection icon** in the taskbar> select **View Available Wireless Networks**. The **Connect to Wireless Network** screen will appear. Please make sure you have selected the correct available network, as shown in the illustration below.



- Check that the **IP address** assigned to the wireless adapter is within the same **IP address range** as the access point and gateway. *(Since the DWL-2100AP has an IP address of 192.168.0.50, wireless adapters must have an IP address in the same range, e.g., 192.168.0.x. Each device must have a unique IP address; no two devices may have the same IP address. The subnet mask must be the same for all the computers on the network.)* To check the **IP address** assigned to the wireless adapter, **double-click** on the **local area connection icon** in the taskbar > select the **Support tab** and the **IP address** will be displayed. *(Please refer to **Checking the IP Address** in the **Networking Basics** section of this manual.)*

- If it is necessary to assign a **static IP address** to the wireless adapter, please refer to the appropriate section in **Networking Basics**. If you are entering a **DNS server address** you must also enter the **default gateway address.** *(Remember that if you have a DHCP-capable router, you will not need to assign a static IP address. See **Networking Basics: Assigning a Static IP Address.**)*

Troubleshooting (continued)

2. The wireless client cannot access the Internet in the Infrastructure mode *(continued).*

- Check to make sure that the router in your network is functioning properly by pinging it. If the router is not functioning properly, it will not connect to the Internet. If you need to find out how to ping network devices, please refer to ***Checking the Wireless Connection by pinging*** in the ***Networking Basics*** section of this manual.

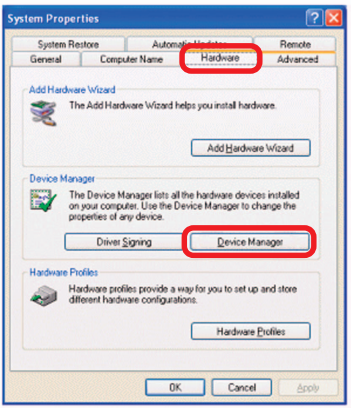
- Check to make sure that the DNS server in your network is functioning properly by pinging it. If the DNS server is not functioning properly, you may be unable to access the Internet. Typically, your ISP (Internet Service Provider) will be able to give you the DNS server information.

3. Check that the drivers for the network adapters are installed properly.

You may be using different network adapters than those illustrated here, but this procedure will remain the same, regardless of the type of network adapters you are using.

- Go to **Start > My Computer > Properties**

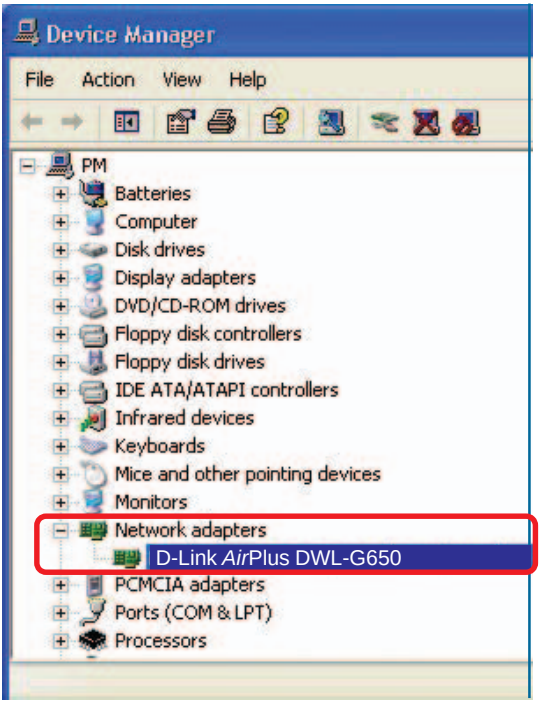
- **Select** the **Hardware Tab**



- Click **Device Manager**

Troubleshooting (continued)

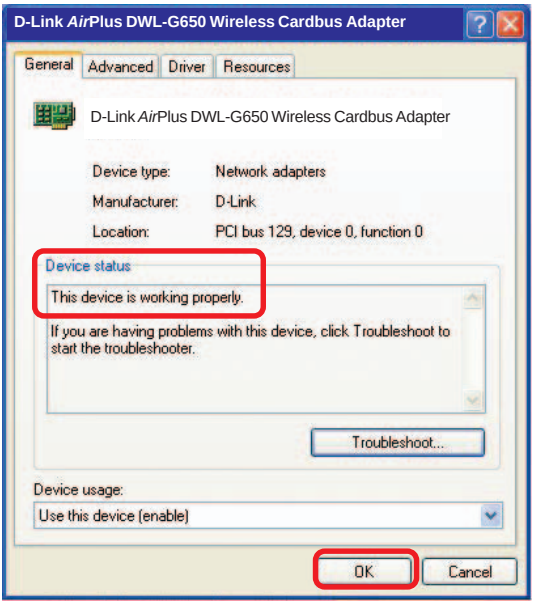
- Double-click on **Network Adapters**



- Right-click on **D-Link *Air*Plus DWL-G650 Wireless Cardbus Adapter** (In this example we use the DWL-G650; you may be using other network adapters, but the procedure will remain the same.)

- Select **Properties** to check that the drivers are installed properly

- Look under **Device Status** to check that the device is working properly



- Click **OK**

Troubleshooting (continued)

4. What variables may cause my wireless products to lose reception?

D-Link products let you access your network from virtually anywhere you want. However, the positioning of the products within your environment will affect the wireless range. Please refer to **Installation Considerations** in the **Wireless Basics** section of this manual for further information about the most advantageous placement of your D-Link wireless products.

5. Why does my wireless connection keep dropping?

- Antenna Orientation- Try different antenna orientations for the DWL-2100AP. Try to keep the antenna at least 6 inches away from the wall or other objects.
- If you are using 2.4GHz cordless phones, X-10 equipment or other home security systems, ceiling fans, and lights, your wireless connection will degrade dramatically or drop altogether. Try changing the channel on your router, access point and wireless adapter to a different channel to avoid interference.
- Keep your product away (at least 3-6 feet) from electrical devices that generate RF noise, like microwaves, monitors, electric motors, etc.
- When deploying several access points and wireless devices, please make sure that access points in close proximity do not have overlapping channels. Nearby access points should be assigned channels that are at least 4 channels apart to prevent interference. For example, with a group of 3 access points you could assign the first to channel 1, the second to channel 6, and the third to channel 11.

6. Why can't I get a wireless connection?

If you have enabled encryption on the DWL-2100AP, you must also enable encryption on all wireless clients in order to establish a wireless connection.

- The encryption settings are: 64-, 128-, or 152-bit. Make sure that the encryption bit level is the same on the access point and the wireless client.
- Make sure that the SSID on the access point and the wireless client are exactly the same. If they are not, wireless connection will not be established.
- Move the DWL-2100AP and the wireless client into the same room and then test the wireless connection.
- Disable all security settings. (WEP, MAC Address Control)

Troubleshooting (continued)

6. Why can't I get a wireless connection? (continued)

- Turn off your DWL-2100AP and the client. Turn the DWL-2100AP back on again, and then turn on the client.
- Make sure that all devices are set to **Infrastructure** mode.
- Check that the LED indicators are indicating normal activity. If not, check that the AC power and Ethernet cables are firmly connected.
- Check that the IP address, subnet mask, and gateway settings are correctly entered for the network.
- If you are using 2.4GHz cordless phones, X-10 equipment or other home security systems, ceiling fans, and lights, your wireless connection will degrade dramatically or drop altogether. Try changing the channel on your DWL-2100AP, and on all the devices in your network to avoid interference.
- Keep your product away (at least 3-6 feet) from electrical devices that generate RF noise, like microwaves, monitors, electric motors, etc.

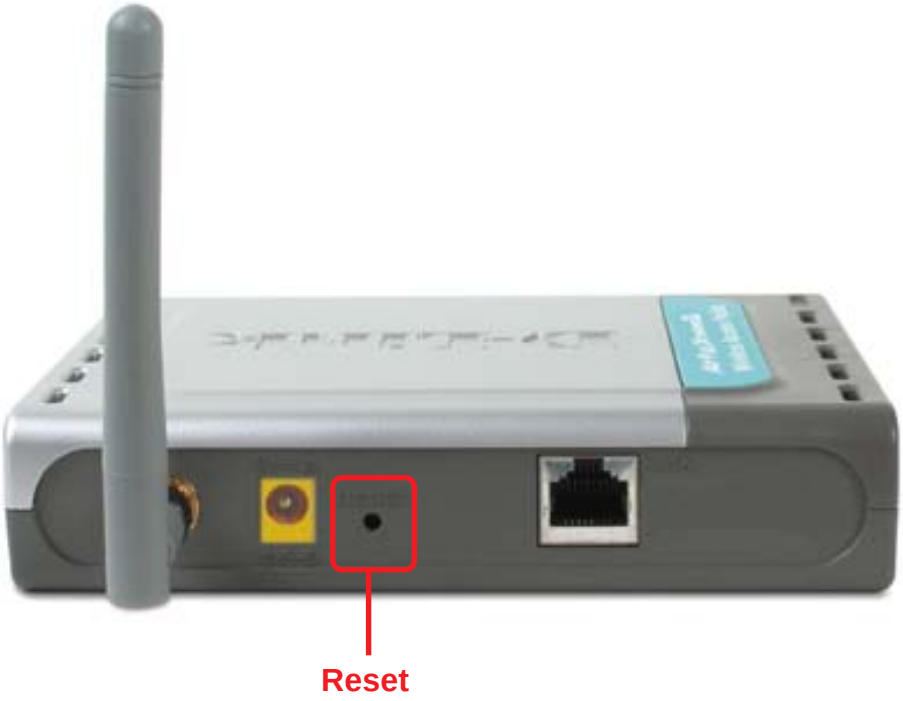
7. I forgot my encryption key.

- Reset the DWL-2100AP to its factory default settings and restore the other devices on your network to their default settings. You may do this by pressing the Reset button on the back of the unit. You will lose the current configuration settings.

Troubleshooting (continued)

8. Resetting the DWL-2100AP to Factory Default Settings

After you have tried other methods for troubleshooting your network, you may choose to **Reset** the DWL-2100AP to the factory default settings.



To hard-reset the D-Link DWL-2100AP to the Factory Default Settings, please do the following:

- Locate the **Reset** button on the back of the DWL-2100AP
- Use a paper clip to press the **Reset** button
- Hold for about 5 seconds and then release
- After the DWL-2100AP reboots (this may take a few minutes) it will be reset to the factory **Default** settings

Technical Specifications

Standards

- IEEE 802.11g
- IEEE 802.11
- IEEE 802.11b
- IEEE 802.3
- IEEE 802.3u

Device Management

- Web-Based- Internet Explorer v6 or later; Netscape Navigator v6 or later; or other Java-enabled browsers
- DHCP Server and Client

Wireless Operating Range

- Indoors – up to 328 feet (100 meters)
- Outdoors – up to 1312 feet (400 meters)

Temperature

- Operating: 32ºF to 149ºF (0ºC to 55ºC)
- Storing: 4ºF to 167ºF (-20ºC to 75ºC)

Humidity:

- 95% maximum (non-condensing)

Safety and Emissions:

- FCC
- UL

Wireless Frequency Range:

- 2.4GHz to 2.4835GHz

Wireless Data Rates with Automatic Fallback:

- 54 Mbps
- 48 Mbps
- 36 Mbps
- 24 Mbps
- 18 Mbps
- 12 Mbps
- 11 Mbps
- 9 Mbps
- 6 Mbps
- 5.5 Mbps
- 2 Mbps
- 1 Mbps

Technical Specifications (continued)

Receiver Sensitivity:

- 54Mbps OFDM, 10% PER, -68dBm
- 48Mbps OFDM, 10% PER, -68dBm
- 36Mbps OFDM, 10% PER, -75dBm
- 24Mbps OFDM, 10% PER, -79dBm
- 18Mbps OFDM, 10% PER, -82dBm
- 12Mbps OFDM, 10% PER, -84dBm
- 11Mbps CCK, 8% PER, -82dBm
- 9Mbps OFDM, 10% PER, -87dBm
- 6Mbps OFDM, 10% PER, -88dBm
- 5.5Mbps CCK, 8% PER, -85dBm
- 2Mbps QPSK, 8% PER, -86dBm
- 1Mbps BPSK, 8% PER, -89dBm

Physical Dimensions:

- L = 5.6 inches (142mm)
- W = 4.3 inches (109mm)
- H = 1.2 inches (31mm)

Wireless Transmit Power:

- 15dBm (32mW) ± 2dB

Security:

- WPA-WiFi Protected Access
  (64-,128-, 152-bit WEP with TKIP, MIC, IV Expansion, Shared Key Authentication)

External Antenna Type:

- 1.0dBm gain with reverse SMA connector

Modulation Technology:

- Orthogonal Frequency Division Multiplexing (OFDM)
- Complementary Code Keying (CCK)

Technical Specifications (continued)

Media Access Control:

- CSMA/CA with ACK

Power Input:

- Ext. Power Supply DC 5V, 2.0A

Weight:

- .44 lbs. (200 g)

Warranty:

- **2** year